



BE IT KNOWN that We, ***Torsten BIECK, Roland DETTLING,***  
***Werner KILLGUSS, Michaela AIGNER, and Andre DIETRICH,*** have  
invented certain new and useful improvements in

***HOLDING DEVICE FOR A BEVERAGE CONTAINER***

of which the following a complete specification:

## BACKGROUND OF THE INVENTION

The invention relates to a holding device of a beverage container such as, for example, a beverage can or a bottle. Such holding devices are known per se in an almost inconceivable multiplicity of different constructional forms. They are used in motor vehicles for holding beverage containers in a manner preventing tipping whilst the vehicle is being driven.

A holding device of such a kind is known from DE 199 26 003 A1. The known holding device has a carriage which is so guided by a slideway in the manner of a drawer as to be displaceable back and forth between an inserted and an extended position. In the inserted position, the carriage is recessed in, for example, the dashboard of a motor vehicle. In the extended position, the carriage projects into the passenger compartment and one or more beverage containers can be placed on the carriage.

For the purpose of holding a beverage container, which has been placed on the carriage in the extended position, in a manner preventing tipping, the known holding device has a holding element which is movably attached to the carriage and moves in an upward direction when the carriage is being extended. The holding element provides lateral support, at a

sufficient distance above the carriage, to the beverage container placed on the holder, so that the beverage container is held in a manner preventing tipping. When the carriage is being inserted, the holding element moves in a downward direction onto or into the carriage so that the overall height of the carriage and holding element is reduced and the holding device can be accommodated in a space of low height in, for example, the dashboard of the motor vehicle.

In the known device, the upward and downward movement of the holding element is derived from the movement of the carriage; a control track arrangement moves the holding element when the carriage is being displaced, it being possible for the control track arrangement to move the holding element in upward and downward directions when the carriage is being inserted and extended. It is also possible for the holding element to be moved by spring actuation in one direction, for example in an upward direction when the carriage is being extended, and to be moved by the control track arrangement in the other direction, that is to say, for example, in a downward direction when the carriage is being inserted.

### SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide the holding device for a beverage container with improved drive means or control track arrangement of the holding element.

In accordance with the present invention, the holding device has a second control track arrangement for the holding element. The two control track arrangements co-operate in the manner of two drive means, each of the two control track arrangements delivering part of the drive work and/or drive forces.

In accordance with the present invention, The two control track arrangements of the invention may act on the holding element in different directions of force application, it being possible for the directions of force application to change during displacement of the carriage. It is also possible for the two control track arrangements of the invention to come into effect successively during displacement of the carriage, for example one control track arrangement providing the displacement and the other at the end of displacement.

It is likewise possible for the contribution of the two control track arrangements of the invention in moving the holding element to change during displacement of the carriage. When it is stated that the control track arrangements of the invention are offset from one another in the direction of displacement of the carriage, the intention is to convey that these are not two congruent control track arrangements, for example on either side of the carriage, but rather are two control track arrangements that are of different structural form and/or that act differently. In accordance with the invention, it is possible, for example, for two control track arrangements to be provided on either side of the carriage.

The present invention has the advantage that the loading on a control track arrangement is reduced as a result of the provision of a second control track arrangement. That is a significant aspect in the case of holding devices, which are customarily made from plastics material. It is a further advantage of the invention that the provision of two control track arrangements makes it possible for application and transfer of a drive force and of a drive moment to be more advantageously arranged with respect to their direction of action and point of application over the entire displacement of the carriage and movement of the holding element.

In accordance with one embodiment of the invention, there is provided a means for guiding the holding element, which guide means, when the carriage is being extended, moves the holding element not only in an upward direction but also, at the same time, relative to the carriage in the extending direction. When the carriage is being inserted, the movement is reversed. That embodiment of the invention makes it possible for the holding element to be moved further in the displacement direction of the carriage than the carriage itself, which allows the displacement distance of the carriage and, consequently, the space required for installation for the holding device in, for example, a dashboard to be reduced.

In accordance with another embodiment of the invention, there is provided a pivot lever as a means for guiding the holding element, which pivot lever is pivotally connected at the carriage and at the holding element. That may also take the form of a pivot lever mechanism comprising several pivot levers. In addition to the pivoting capability, a possibility of sliding the pivot lever at a connection point may also be provided.

In another development of the invention, there is provided a guide track arrangement as a means for guiding the holding element on the carriage. Both of the mentioned kinds of guide means, which may also be

put into practice together, constitute simple guidance means with many possibilities for implementing the movement of the holding element in relation to the carriage.

In a further embodiment of the invention, at least two holding elements are provided for one beverages container, which holding elements move in an upward direction when the carriage is being extended and jointly provide lateral support to a beverage container inserted between them and placed on the extended carriage. That embodiment of the invention makes it possible for the holding elements to be accommodated in space-saving manner in or on the carriage when not in use, that is to say especially when the carriage has been inserted.

In still a further embodiment of the invention, there is provided a support surface having a cut-outs for accommodating feet of a beverage container placed on the carriage. The purpose of that embodiment is as follows: Plastics (PET) bottles are known which have downwardly protruding projections on their base, which form feet of a kind on the bottle. When a bottle of that kind is placed on the carriage, the feet of the bottle enter the cut-outs, which improves the hold on the base of the bottle. In addition, the depth to which the bottle is inserted is increased; the holding element

provides the bottle with lateral support at a greater height above its base and as a result holds it more securely against tipping.

It is self-evident that the cut-outs, in terms of size and arrangement, must be formed to fit the bottle being inserted. Because the bottles are standardized, that is unproblematic. A beverage container without such feet on its base, for example a beverages can, can be placed on the carriage of the holding device in the usual manner without any problem.

The novel features which are considered as characteristic for the present invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.



**BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is a perspective view of a holding device according to the invention; and

Figure 2 is an enlarged-scale detail corresponding to arrow II in Figure 1, in a cut-away view.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

A holding device according to the invention which is shown in Figure 1 and referred to as a whole by reference numeral 1 is intended for installation, for example, the dashboard of a motor vehicle (not shown). The holding device 10 has a flat, drawer-shaped housing 11, which is open at one end face. The housing 11 accommodates a slider 12, which is so guided in the housing 11 in the manner of a drawer as to be displaceable back and forth between the extended position shown and a position (not shown) inserted in the housing 11.

In the extended position, the slider 12 projects out from the housing 11 and closes off the open end face thereof by means of a panel 14. The housing 11 forms a slideway for the carriage 12. A scroll spring 16 attached to the rear face of the carriage 12, the free end 18 of which scroll spring 16 is attained to the housing 11 close to the open end face of the housing 11, displaces the carriage 12 into the extended position. A push-push locking mechanism (not shown in the drawing) holds the carriage 12 against the force of the scroll spring 16 in the position inserted in the housing 11. Gentle pressure on the panel 14 causes the push-push locking mechanism to be unlocked in a manner known per se.

Two beverage containers, for example beverage cans or plastics (PET) bottles, can be placed next to another on the carriage 12 in the extended position. For each beverage container, the carriage 12 has two holding elements 20, 22, which are pivotally attached to the carriage 12 and which pivot in an upward direction when the carriage 12 is being extended. Each of the rear holding elements 20 is of bow-like construction and is pivoted in an upward direction by a leg spring 24. The other, front holding element 22 is a plastic part, which has one spring-loaded, C-shaped yoke 26 for each beverages container.

The front holding element 22 has a pivot lever 28 and a guide track arrangement 30 is arranged in the middle of the carriage, towards the front; one of its end is pivotally mounted on the carriage 12 and its other end is pivotally mounted on the holding element 22. When the carriage 12 has been extended and the holding element 22 has been pivoted up, the pivot lever 28 stands up at an angle and slopes slightly backwards towards the housing 11. When the pivot lever is pivoted down, it causes the holding element 22 not only to move in a downward direction into the carriage 12 but also, at the same time, to move relative to the carriage 12 in a rearward direction towards the housing 11.

Congruent guide track arrangements 30 are provided on either side of the carriage 12, one arcuate guide track 32 being provided in each lateral wall of the carriage 12, which a guide pin 34 engages in displaceable manner. The guide pin 34 is integral with the front holding element 22 and projects in an outward direction therefrom. The guide track 32 is so oriented that the front holding element 22 moves relative to the carriage 12 in a rearward direction towards the housing 11 when it is being lowered down into the carriage 12.

The pivot lever guide means and the guide track arrangement 30 accordingly bring about movement of the front holding element 22 relative to the carriage 12 in a rearward direction towards the housing 11 when the front holding element 22 is being lowered into the carriage 12. Vice-Versa, the front holding element 22 moves relative to the carriage 12 in a forward direction when the front holding element 22 is being moved up from the carriage 12. As a result of that forward movement relative to the carriage 12, the distance through which the carriage 12 has to be extended can be reduced.

A drive means moves the holding elements 20, 22 in a downward direction when the carriage 12 is being displaced into the housing

11. The drive means comprises two control track arrangements which are provided one behind the other in the displacement direction of the carriage 12 in congruent arrangement on either side of the carriage 12. Those control track arrangements are shown in Figure 2. The two control track arrangements have a common pivot lever 36, which is pivotally attached to sides of the carriage 12. Two guide pins 38, 40 project in an outward direction from the pivot lever 36. The guide pins 38, 40 project in an upward direction from the pivot lever 36. The guide pins 38, 40 engage through slots 42, 44, in the shape of arcs of a circle, in sides of the carriage 12 and co-operate with control tracks 46, 48, which are arranged on inside faces of side walls of the housing 11.

One of the two control tracks 46 has a ramp 50, which rises in an arc in the insertion direction of the carriage 12 and moves the guide pin 38 with which it is associated in an upward direction when the carriage 12 is being inserted. The other control track 48 has a likewise arcuate portion 52, which extends in a downward direction in the insertion direction of the carriage 12. The other guide pin 40 comes into engagement with that portion 52 when the carriage 12 is pushed somewhat further into the housing 11. The ramp 52 of the second control track 48 moves the guide pin 40 in a

downward direction when the carriage 12 is being inserted into the housing 11.

The two control tracks 46, 48 and the guide pins 38, 40 jointly cause the pivot lever 36 to be pivoted in the insertion direction of the carriage 12 when the carriage 12 is being inserted into the housing 11. In their further course, the two guide tracks 46, 48 become straight regions which extend in the displacement direction of the carriage 12 and which the guide pins 38, 40 enter when the carriage 12 is inserted further into the housing 11.

The pivot lever 36 is pivotally connected to the rear end of the front holding element 22. When the pivot lever 36 is pivoted in the insertion direction of the carriage 12 when the carriage 12 is being inserted into the housing 11 in the manner described hereinbefore, it pulls the rear end (the end facing it) of the front holding element 22 in a rearward direction, that is to say in the insertion direction of the carriage 12, and pivots the holding element 22, by means of its guide means 28, 30, down into the carriage 12. At the same time, the holding element 22 is moved relative to the carriage 12 in the insertion direction in the manner also described hereinbefore.

When the carriage 12 is being extended, a leg spring element 54 pivots the pivot lever 36 in the extension direction of the carriage 12 when the guide pins 38, 40 are released from the straight regions of the control tracks 46, 48 and enter the regions of the arcuate portion 52 and the ramp 50 of the guide tracks 46, 48. As a result, the front holding element 22 is not only pivoted in an upward direction but also, at the same time, moves relative to the carriage 12 in a forward direction, that is to say in its extension direction, also in the manner described above. That results in a longer path of extension of the front holding element 22 from the housing 11 compared to the carriage.

By means of a pull lever 56 in each case, the two rear holding elements 20 are pivoted down into the carriage 12 when the carriage 12 is being inserted. The pull lever 56 is pivotally connected at the pivot lever 36 and to a lever 56, which is rigidly connected to the rear holding element 20. Leg springs 60 pivot the rear holding elements 20 in an upward direction when the carriage 12 is being extended. When the carriage 12 has been extended and the holding elements 20, 22 are in the pivoted-up position, two beverages container (not shown) can be inserted between holding elements 20, in a manner preventing tipping.

The carriage 12 has a plate-like support 62, which is so mounted on the carriage 12 that it can pivot about a limited angle of pivot in a downward direction. The support 62 is used as a surface for supporting beverage containers inserted in the holding device 10. The support 62 has cut-outs 64 for any beverage container. The cut-outs 64 are so arranged and formed that the feet of known plastics bottles engage in the cut-outs 64. As a result, on the other hand, the hold on the base of such a bottle is improved and the security against tipping is increased. Also, as a result of the cut-outs 64, the said bottles are inserted more deeply in the holding device 10 and are consequently supported at a higher location on their periphery by the holding elements 20, 22. That also increases the security against tipping of bottles inserted in the holding device 10.

When the carriage 12 is being extended, the support 62 pivots about a limited angle of pivot in a downward direction. When the carriage 12 is being inserted into the housing 11, the support 62 slides along the front edge of the base of the housing 11 and is, as a result, urged up into the carriage 12.



It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of constructions differing from the types described above.

While the invention has been illustrated and described as embodied in a holding for a beverage container, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.